MARKED-UP VERSION OF THE AMENDED CLAIMS

1. (currently amended) Cardiovascular ~~prostheses~~ prothesis with an endothelial cell surface produced in that after an initial sub-confluent seeding of a surface on the blood contact side, the formation of a confluent monolayer ensues by the cells growing under a permanent influence of defined pulsatile shear forces increasing up to physiological values, by means of streaming the prosthesis surface on the blood contact side along a main axis of the prosthesis in an inner perfusion circuit [[and]] or by moistening an outer prosthesis wall in an outer perfusion circuit, or in a permeable medium reservoir.

2. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 1, characterized in that the increasing shear forces are generated by means of a program-controlled pumping device (7).

3. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 1, characterized in that the mathematical value of the increasing shear forces can be selected variably and time-independently.

4. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 1, characterized in that the mathematical value and the final value of the shear forces can be selected freely and time-variably by means of a program control according to the physiological conditions of the implantation location.

5. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 1, characterized in that the mathematical value of the occurring shear forces can be adjusted by varying pumping capacity, as well as by varying the size of the cross-section of pumping tubes used or of any other connecting elements outside of [[the]] a chamber, as well as by the geometrical form and configuration of the very chamber.

6. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 1, produced by means of a perfusion circuit consisting of an inner perfusion circuit (5) for streaming the prosthesis surface on the blood contact side along the main axis of the prosthesis inside of [[the]] a chamber (2), said prosthesis (1) being fixed in the inner space thereof by means of adapters (3, 3'), and hence constituting as such the inner perfusion circuit (5), and an outer perfusion circuit (5') for outwardly streaming the prosthesis (1) within the same chamber (2) which comprises, towards the outside, connections to a pumping device (7) for both

circuits (5, 5'), as well as to the permeable medium ~~reservoirs~~ reservoir (6, 6') which also have the function of pressure equation reservoirs.

7. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 1, produced by means of a perfusion circuit consisting of an inner perfusion circuit (5) for streaming the prosthesis surface on the blood contact side along the main axis of the prosthesis inside of [[the]] a chamber (2), said prosthesis (1) being fixed in the inner space thereof by means of an adapter (3), and hence constituting as such the inner perfusion circuit (5), and an outer perfusion circuit (5') uniting inside of the chamber (2) with the inner perfusion circuit (5) after having streamed the prosthesis (1) for outwardly streaming the prosthesis (1) within the same chamber (2) which comprises, towards the outside, connectors to a pumping device (7) for both circuits (5, 5'), as well as to the permeable medium reservoir ~~reservoirs~~ (6, 6') which also have the function of pressure equation reservoir.

8. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 6, characterized in that the outer perfusion circuit (5') can be operated by a method selected from the group consisting of co-current transporting to the inner perfusion circuit (5), counter-current transporting to the inner perfusion circuit (5), and static transporting to the inner perfusion circuit (5).

9. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 6, characterized in that the perfusion circuits lead from one medium reservoir (6) into another medium reservoir (6'), in which the medium collected has already streamed through the prosthesis.

10. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 6, characterized in that the inner and the outer perfusion circuits have different medium reservoirs or one and the same medium reservoir (6, 6').

11. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 6, characterized in that the prosthesis is present in the [[very]] permeable medium reservoir, and that the inner and the outer perfusion circuits are thereby connected with each ~~another~~ other.

12. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 6, characterized in that the medium reservoirs are comprised of expandable blood bags of the materials PVC or EVAM.

13. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 6, characterized in that ~~the realization of~~ the adapters (3, 3') for fixing the prosthesis (1) ~~is realized~~ are furnished by an olive .

14. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 6, ~~characterized in that~~ wherein the prothesis is to be clamped and wherein a [[the]] length of the prosthesis ~~to be clamped~~ can be varied by constructionally providing at least one closing part with the adapter (3 or 3') of chamber (2).

15. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 6, characterized in that the chamber (2) is manufactured from a transparent material.

16. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 1, characterized in that the prosthesis is used as a member selected from the group consisting of a vascular prosthesis, a heart valve prosthesis and a stent.

17. (currently amended) Method for covering cardiovascular ~~prostheses~~ prothesis with endothelial cells according to claim 1, characterized in that after an initial sub-confluent seeding of the prosthesis surface on the blood contact side, the formation of a confluent monolayer ensues by the cells growing under permanent influence of defined pulsatile shear forces increasing up to physiological values by means of streaming the prosthesis surface on the blood contact side along the main axis of the prosthesis in an inner perfusion circuit, [[and]] or a moistening of the

outer prosthesis wall in an outer perfusion circuit or in a permeable medium reservoir.

18. (currently amended) The method according to claim 17, characterized in that

a) the increasing shear forces are generated by means of a program-controlled pumping device (7),

b) the mathematical value of the increasing shear forces can be selected variably and time-independently,

c) the mathematical value and the final value of the shear forces can be selected freely and time-variably by a program control according to the physiological conditions of the implantation location, and

d) the mathematical value of the arising shear forces can be adjusted by varying the pumping capacity, as well as by varying the size of the cross-section of [[the]] pumping tubes used or of any other connecting elements outside of [[the]] a chamber, as well as by the geometrical form and configuration of the very chamber.

19. (previously presented) The method according to claim 17, characterized in that in an inner perfusion circuit (5) for streaming through the inner prosthesis space along the main axis of the prosthesis inside of the chamber (2), the prosthesis (1) is fixed by means of adapters (3, 3'), and hence as such constitutes the inner perfusion circuit (5), and that an outer perfusion circuit (5') exists for outwardly streaming the prosthesis (1) in the same chamber (2) which, towards the outside, comprises for the two circuits (5, 5') connectors to a pumping device (7) and medium reservoirs (6, 6') which also have the function of pressure equation reservoirs.

20. (currently amended) The method according to claim 17, characterized in that [[a)]] the outer perfusion circuit (5') can be operated in a way selected from the group consisting of co-current to the inner perfusion circuit, [[or]] counter-current to the inner perfusion circuit (5), ~~but also~~ and statically,

[[b)]] the two perfusion circuits (5, 5') do not work as a closed system but lead from one medium reservoir (6) into another medium reservoir (6'), in which the medium collected has already streamed through the prosthesis,

~~c) the inner and the outer perfusion circuits have a member selected of the group consisting of different medium reservoirs and one and the same medium reservoir (6, 6'),~~ and

[[d)]] the two perfusion circuits (5, 5') unite inside the chamber (2) after having streamed the prosthesis (1), but leave the chamber (2) in separate perfusion circuits (5, 5').

21. (currently amended) The method according to claim 17, characterized in that the prosthesis is present in the [[very]] permeable medium reservoir and that the inner and the outer perfusion circuits are thereby connected with each other ~~another~~.

22. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 6, characterized in that ~~the realization of~~ the adapters (3, 3') for fixing the prosthesis (1) ~~is realized~~ are furnished by cones with clamping means.

23. (currently amended) Cardiovascular ~~prostheses~~ prothesis according to claim 6, characterized in that ~~the realization of~~ the adapters (3, 3') for fixing the prosthesis (1) ~~is realized~~ are furnished by an expansion member.

24. (currently amended) Cardiovascular ~~prostheses~~ prothesis comprising an endothelial cell surface produced wherein the formation of a confluent monolayer ensues by the cells growing under a permanent influence of defined pulsatile shear forces increasing up to physiological values after an initial sub-confluent seeding of a surface on the blood contact side, by means of streaming the prosthesis surface on the blood contact side along a main axis of the prosthesis in an inner perfusion circuit [[and]] or by moistening an outer prosthesis wall in an outer perfusion circuit, or in a permeable medium reservoir.

25. (currently amended) The cardiovascular ~~prostheses~~ prothesis according to claim 24 wherein the shear force is from about 0.01 to 5 dyn/cm2.

26. (currently amended) The cardiovascular ~~prostheses~~ prothesis according to

claim 24 wherein a confluent endothelial layer having a high quality is present.

27. (currently amended) A method for covering cardiovascular ~~prostheses~~ prothesis with endothelial cells comprising the following steps:

initially sub-confluently seeding the prosthesis surface on the blood contact side;

streaming the prosthesis surface on the blood contact side along the main axis of the prosthesis in an inner perfusion circuit, [[and]] or a moistening of the outer prosthesis wall in an outer perfusion circuit or in a permeable medium reservoir;

growing cells growing under a permanent influence of defined pulsatile shear force increasing up to physiological values;

forming a confluent monolayer of the grown cells.

28. (previously presented) The method for covering cardiovascular prostheses according to claim 27 further comprising employing a shear force from about 0.01 to 5 dyn/cm2.

29. (currently amended) The method for covering cardiovascular ~~prostheses~~ prothesis according to claim 27 further comprising forming a confluent endothelial layer having a high quality.

30. (currently amended) The method for covering cardiovascular ~~prostheses~~ <u>prothesis</u> according to claim 27 further comprising

varying pumping capacity <u>of endothelial cells</u> for adjusting the size of occurring shear forces.

31. (currently amended) The method for covering cardiovascular ~~prostheses~~ <u>prothesis</u> according to claim 27 further comprising

generating increasing shear forces by means of a program-controlled pumping device (7).

32. (new) The method according to claim 17, characterized in that

the outer perfusion circuit (5') can be operated in a way selected from the group consisting of co-current to the inner perfusion circuit (5), counter-current to the inner perfusion circuit (5), and statically,

the inner and the outer perfusion circuits have a member selected of the group consisting of different medium reservoirs and one and the same medium reservoir (6, 6'), and

the two perfusion circuits (5, 5') unite inside the chamber (2) after having streamed the prosthesis (1), but leave the chamber (2) in separate perfusion circuits (5, 5').